

SYLLABUS

EGN2230 ENGINEERING MECHANICS/DYNAMICS 3 HOURS CREDIT

SEMESTER: SPRING 2012

INSTRUCTOR: Dr. George Saum

Office: Room 16 A & S Bldg.

Phone: 573-518-2174

e-mail gsaum@mineralarea.edu

OFFICE HOURS

12:00-1:00

MTWR 10:00 F

Science Department Chair: Dr. Gamble

OFFICE: AS 31

PHONE: 573-518-2195

Application of the principles of mechanics to engineering problems of motion and acceleration. Topics include plane motion, forces, masses, acceleration, work and energy, and impulse and momentum, planar kinetics, and three-dimensional kinetics of rigid bodies.

Must be preceded by Engineering Mechanics-Statics (EGN 2130)

This course meets for three lectures per week.

MWF 8:00 8:50 AS 112

Reference Materials:

Textbook: Engineering Mechanics-Dynamics, by R. C. Hibbeler, Prentice Hall, 12th edition, 2010
ISBN-13: 978-0-13-609200-1

Other Materials:

Scientific calculator.

Three ring notebook for problems.

Course Content:

Week	Chapter	Content
1	12	Kinetics of a Particle
2	12	
3	13	Force and Acceleration
4	14	Work and Energy
5	15	Impulse and Momentum
6	16	Planar Kinematics of Rigid Body
7	16	
8	17	Planar Kinetics of Rigid Body: Force and Acceleration
9	17	
10	18	Planar Kinematics of Rigid Body: Work and Energy
11	19	Planar Kinetics of a Rigid Body: Impulse and Momentum
12	20	Three dimensional Kinematics of a Rigid Body
13	20	
14	21	Three Dimensional Kinetics of a Rigid Body
15	21	
16		Finals

Evaluation: Homework 20 %
Exams 80 % (There will be 4 exams)

Attendance:

Disciplined attendance is strongly encouraged.

School policy prohibits a total of more absences than one equivalent classroom week. Poor attendance will severely impact your classroom performance.

American Disabilities Act

If you have special needs as addresses by the American Disabilities Act and you need any test or course materials provided in alternative format, notify your instructor immediately. Reasonable efforts will be made to accommodate your special needs.

SCHOOL POLICIES:

Cell Phones are **not allowed** in the **classrooms**, nor the **computer lab**. When you are in a classroom or the computer lab, please turn your cell phone off or put it on vibrate. Getting a phone call in the middle of class or in a room full of students who are trying to study or take a test can be very disruptive. If you need to take a call or make a call, please take it outside.

MAC's Policy for Disciplinary Action

“...College discipline shall be exercised when student misconduct adversely affects the college’s pursuit of its educational objectives. Misconduct for which students are subject is defined as follows: Dishonesty, such as cheating, plagiarism, or knowingly furnishing false information to the college” (Mineral Area College Board Policy Manual, section 5.72, IA., p. 99).

		TOPIC	SECTION	PROBLEMS
JAN	11	Kinematics	12.2-3	12-11,19,51,57
	13	Curvilinear Motion	12.4-6	12-71,74,87,94
	16	MLK DAY		
	18	Projectile Motion	12.7	12-115,117,130,141
	20	Curvilinear Motion	12.8	12-165,167,175,185
	23	Dependent Motion	12.9	12-198,201,207,213
	25	Relative Motion	12.10	12-215,221,223,225
	27	Newton's Laws	13.1-4	13-15,17,27,38
	30	Equation of Motion	13.5-6	13-62,65,105,114
FEB	1	WYSE		
	3	Work and Energy	14.1-3	14-13,22,27,34
	6	Power/Conservative Systems	14.4-6	14-77,83,97,99
	8	Impulse and Momentum	15.1-3	15-9,13,39,54
				NO DYNAMICS CLASS
	10	TEST 1 12-13-14		
	13	Impact	15.4	15- 61,63,75,83
	15	Angular Momentum	15.5-7	15- 91,93,98,103
	17	Translation and Rotation	16.1-3	16- 2,9,18,22
	20	PRESIDENT'S DAY		
	22	Absolute Motion	16.4	16- 38,42,45,53
	24	Relative Velocity	16.5	16- 55,57,70,74
	27	Instantaneous Center	16.6	16- 89,93,105,106
	29	Relative Acceleration	16.7	16- 109,111,115,117
MAR	2	Relative Acceleration	16.7	16- 121,123,126,129
	5	Rotating Axes	16.8	16- 135,139,143,147
	7	Moment of Inertia	17.1	17- 3-9-11-12
	9	TEST 2 15-16		
	12-16	SPRING BREAK		
	19	Planar Motion-Translation	17.2-3	17- 30-34-39-53
	21	Rotation About Fixed Axis	17.4	17- 59-67-81-85
	23	General Plane Motion	17.5	17- 93-94-98-101
	25	General Plane Motion	17.5	17- 105-106-109-119
	27	Work and Energy	18.1-4	18- 7-9-15-26
	30	Conservative Systems	18.5	18- 60-62-65-67
APR	2	Impulse and Momentum	19.1-3	19- 10-14-17-19
	4	Impact	19.4	19- 35-39-46-51
	6	BREAK		
	9	3-D Kinematics	20.1-3	20- 3-5-6-19
	11	TEST 3 17-18-19		
	13	3-D Kinematics	20.1-3	20- 25-27-33-37
	16	3-D Kinematics	20.4	20- 41-43-45
	18	3-D Kinematics	20.4	20- 50-53-55
	20	3-D Kinetics	21.1	21- 3-5-11-14
	23	3-D Kinetics	21.2-3	21- 22-25-29
	25	3-D Kinetics	21.2-3	21- 33-35-37-39
	27	3-D Kinetics	21.4	21- 43-46-49
	30	3-D Kinetics	21.4	21- 51-54-55
MAY	2	3-D Kinetics	21.4	21- 57-59-60
	4	Review		
	7	Review		
	9	TEST 4 (FINAL) 20-21 8:00		